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POST-TRAUMATIC ABNORMALITIES AND OA AFTER A LATERAL ANKLE SPRAIN ARE NOT ASSOCIATED WITH PERSISTENT SYMPTOMS

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Purpose: Persistent symptoms after a lateral ankle sprain are very common. It is unknown whether these persistent complaints are associated with structural changes or abnormalities in the ankle. Therefore, the purpose of this study was to determine the prevalence of structural abnormalities after a lateral ankle sprain and to investigate the association between structural abnormalities seen on radiography and MRI and persistent symptoms after a lateral ankle sprain.

Methods: Patients who visited their general practitioner 6 to 12 months ago with a lateral ankle sprain were selected for this study. All patients received a standardized questionnaire and underwent a physical examination, radiography and MRI (bi-lateral, 1.5 Tesla) of the ankle. Two musculoskeletal radiologists performed standardized scoring of radiography and MRIs. The presence of persistent symptoms was assessed using a 7-point Likert scale (1 = completely recovered, 7 = worse than ever). Based on this score, patients with (score 3–7) and without (score 1–2) persistent symptoms were compared regarding post-traumatic and degenerative abnormalities found on radiography and MRI. All analyses were adjusted for potential confounders including age, gender and BMI.

Results: A total of 206 patients (mean age 37.5(14.7), 43.1% male) were included, 98 of which reported persistent symptoms. Abnormalities were significantly more prevalent in the injured ankle compared to the contralateral ankle and most frequently reported in the talocrural and talonavicular joint: bone marrow edema (33.8% and 13.3%), osteochondral lesions (5.6% and 0%), osteophytes (39.5% and 54.4%), sclerosis (2.1% and 47.2%) cartilage loss (10.3% and 20%) and mild to severe osteoarthritis (KL grade>1, 41.5% and 55.4%). No significant differences in structural abnormalities were found between patients with and without persistent symptoms, when adjusted for age, gender and BMI.

Conclusions: The prevalence of structural MRI abnormalities on radiography and MRI in patients with a previous ankle sprain is high. However, there is no difference in structural abnormalities between patients with and without persistent clinical symptoms. These findings are important for clinical practice as ankle sprains appear to be associated with a larger chance of structural abnormalities and early signs of osteoarthritis in the ankle.

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ASSOCIATION BETWEEN SENSORY FUNCTION AND MEDIO-LATERAL KNEE POSITION DURING DYNAMIC TASKS IN PATIENTS WITH ANTERIOR CRUCIATE LIGAMENT INJURY

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Purpose: To investigate the influence of sensory function on the medio-lateral knee position during dynamic tasks in patients with anterior cruciate ligament injury (ACL). Possible gender differences were also explored. We hypothesized that worse sensory function would be related to a knee medial to foot position during dynamic tasks and that this relation would be more evident in women than in men. ACL injury leads to impaired proprioceptive acuity, reduced muscle strength, worse functional performance and an increased risk of early-onset knee osteoarthritis. These patients also often exhibit worse movement quality during dynamic tasks, observed as the appearance of the knee with a medial position relative to the foot. This movement pattern is suggested to be more common in women than in men. Possible contributing sensorimotor factors for this altered knee position are poorly studied in these patients.

Methods: Fifty-one patients (23 women), range 18–40 years, with ACL injury were included in this cross-sectional study. Measures of sensory function were assessed by the threshold to detection of passive motion (TDPM) for knee kinesthesia and by vibration perception threshold (VPT) at the metatarsophalangeal joint 1 (MTP1), the medial malleolus (MM) and the medial femoral condyle (MF) for vibration sense. Movement quality was assessed by visual observation and scoring of the position of the knee in relation to the foot during eight functional tasks with increasing difficulty; mini squat, single-limb mini squat, stair ascending, stair descending, forward lunge, drop-jump, one-leg hop for distance and crossover hop for distance. The mid-point of patella in line with the talocrural joint indicates good movement quality and was scored as "0". The mid-point of patella medial to the talocrural joint indicates poor movement quality and was given scores from 1 to 3, where 1 = "fair", 2 = "poor", and 3 represents when the execution of the test does not have any similarity to the intended task. Spearman's rank correlation coefficient was used to determine the relationship between the sensory measures and the knee score during the functional tasks. Because this study had an exploratory design we did not apply the Bonferroni correction for multiple comparisons.

Table 1
Correlations between sensory measures and medio-lateral knee position during functional task

Measures of sensory function	Functional tasks resembling daily and more demanding activities							
	Mini-squat	Single-limb mini squat	Stair ascending	Stair descending	Forward lunge	Drop-jump	Single-limb hop	Cross-over hop
Women	(n = 23)	(n = 23)	(n = 23)	(n = 23)	(n = 20)	(n = 13)	(n = 13)	(n = 12)
TDPM	rs = 0.317	rs = 0.344	rs = 0.253	rs = −0.195	rs = 0.056	rs = 0.469	rs = 0.085	rs = 0.697
	p = 0.140	p = 0.108	p = 0.243	p = 0.371	p = 0.814	p = 0.106	p = 0.783	p = 0.012
VPT MTP1	rs = 0.012	rs = 0.114	rs = 0.359	rs = 0.467	rs = 0.346	rs = −0.343	rs = 0.360	rs = −0.324
	p = 0.956	p = 0.603	p = 0.092	p = 0.025	p = 0.136	p = 0.251	p = 0.226	p = 0.304
VPT MM	rs = 0.141	rs = 0.069	rs = 0.486	rs = 0.606	rs = 0.556	rs = −0.088	rs = −0.246	rs = 0.162
	p = 0.521	p = 0.756	p = 0.019	p = 0.002	p = 0.011	p = 0.776	p = 0.417	p = 0.615
VPT MF	rs = 0.079	rs = −0.092	rs = 0.067	rs = 0.197	rs = 0.269	rs = 0.408	rs = 0.128	rs = 0.128
	p = 0.719	p = 0.675	p = 0.762	p = 0.397	p = 0.251	p = 0.167	p = 0.678	p = 0.678
Men	(n = 28)	(n = 28)	(n = 28)	(n = 28)	(n = 28)	(n = 23)	(n = 22)	(n = 20)
TDPM	rs = 0.084	rs = 0.008	rs = 0.276	rs = 0.338	rs = −0.030	rs = 0.423	rs = 0.205	rs = −0.146
	p = 0.671	p = 0.969	p = 0.155	p = 0.079	p = 0.878	p = 0.044	p = 0.360	p = 0.539
VPT MTP1	rs = 0.222	rs = −0.170	rs = −0.157	rs = −0.143	rs = −0.052	rs = −0.069	rs = 0.042	rs = 0.149
	p = 0.256	p = 0.388	p = 0.424	p = 0.468	p = 0.794	p = 0.755	p = 0.844	p = 0.532
VPT MM	rs = 0.057	rs = −0.115	rs = −0.083	rs = 0.021	rs = 0.232	rs = −0.162	rs = −0.195	rs = −0.007
	p = 0.773	p = 0.560	p = 0.869	p = 0.917	p = 0.235	p = 0.461	p = 0.385	p = 0.977
VPT MF	rs = 0.196	rs = −0.039	rs = 0.070	rs = 0.121	rs = −0.237	rs = 0.338	rs = 0.046	rs = 0.091
	p = 0.317	p = 0.844	p = 0.724	p = 0.540	p = 0.224	p = 0.079	p = 0.836	p = 0.704

TDPM = threshold to detection of passive motion, VPT = vibration perception threshold, MTP1 = metatarsophalangeal joint 1, MM = medial malleolus, MF = medial femoral condyle.